00004567S

CORRES. CONTROL
OUTGOING LTR NO.

DOE ORDER# 4700.1
94 RF 10974

DIST.	LTR	ENC
AMARAL, M.E.		
BURLINGAME, A.H.		
BUSBY, W.S.		
BRANCH, D.B.		
CARNIVAL, G.J.		
DAVIS, J.G.		
FERRERA, D.W.		
FRAY, R.E.		
GEIS, J.A.		
GLOVER, W.S.		
GOLAN, P.M.		
HANNI, B.J.		
HARMAN, L.K.		
HEALY, T.J.		
HEDAHL, T.		
HILBIG, J.G.		
HUTCHINS, N.M.		
JACKSON, D.T.		
KELL, R.E.		
KUESTER, A.W.		
MARX, G.E.		
McDONALD, M.M.		
McKENNA, F.G.		
MONTROSE, J.K.		
MORGAN, R.V.		
POTTER, G.L.		
PIZZUTO, V.M.		
RISING, T.L.		
SANDLIN, N.B.		
STIGER, S.G.	X	X
Chromec FW	X	X
Hollowell LJ	X	X
Lee, P.A T893A	X	X
Smith, RG	X	X
CORRES. CONTROL	X	X
ERPD Rec Center	X	2
PATS/T130G		

CLASSIFICATION:

UCNI		
UNCLASSIFIED		
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER SIGNATURE
DOCUMENT CLASSIFICATION REVIEW WAIVER PER CLASSIFICATION OFFICE
DATE

IN REPLY TO RFP CC NO:
~~03876RF94~~

ACTION ITEM STATUS
☐ PARTIAL/OPEN
☒ CLOSED

LTR APPROVALS:
ENC:
ORIG & TYPIST INITIALS
FWC:kld

RF-18469 (Rev. 6/94)

EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

October 27, 1994

94-RF-10974

J. D. Wienand
Acting Director for
Planning & Integration
DOE, RFFO

RESULTS OF REVIEW OF AQUASAN NETWORK INC. PRELIMINARY ASSESSMENT OF THE HYDROLOGIC EFFECTS OF THE WESTERN AGGREGATE PROPOSAL - SGS-573-94

Action: None Required

The report was reviewed by staff of Environmental Restoration Program Division and Ecology and Watershed Management. A meeting was held Monday, October 21, 1994, to discuss the report (inputs/concerns - attached).

The reviewed report does not adequately address the impacts mining may have on ground water down-gradient of the proposed mining operation. Assumptions made in the report are not sufficiently documented or referenced. The report says that the mining activities will not penetrate the water table, however, this is not supported by available hydrologic data or the mining permit statement. Mitigation and remediation strategies are also not addressed.

Also the report does not support the concern that the mining operation will not have an impact on the proposed administrative areas for the Preble's Meadow Jumping Mouse (attached map). EG&G Rocky Flats, Inc. suggests the report be forwarded to the US Fish and Wildlife Service and the Colorado Division of Wildlife.

Please direct any comments or questions on the assessment of the hydrologic effects of the Western Aggregate Proposal to Win Chromec of the Environmental Restoration Program Division. Win can be reached on extension 8641 or digital page 5144.

S. G. Stiger, Director
Environmental Restoration
Program Division

FWC:kld

Orig. and 1 cc - J. D. Wienand

Attachments:
As Stated (3)

ADMIN RECORD

cc:
M. N. Silverman - DOE, RFFO

SW-A-003774

1/6

EG&G ROCKY FLATS

INTEROFFICE CORRESPONDENCE

Date: October 25, 1994

To: F.W. Chromec, ERM, x8641, room 0502

From: R. G. Smith, Jr., EOM, x8705, cube 0643 RGS

Subject: Review of AquaSan Network, Inc. Report "Preliminary Assessment of the Hydrologic Effects of the Section 16 and Bluestone Amendments Sand and Gravel Mine Expansions", dated September 29, 1994, prepared for Western Aggregates, Inc.

The AquaSan report presents a very preliminary assessment of potential annual net changes to groundwater quantity at the two proposed mine extension areas based on a simple hydrologic balance analysis approach. The approach is useful for estimating net changes to the groundwater system, however it is inadequate for assessing potential impacts of mining on groundwater flow at wetland areas. The report recognizes this limitation and assumes that additional hydrology studies may be required to better define the potential impacts to groundwater systems in the mine areas.

The components of the balance appear to be generally complete although some aspects of the balance require further clarification. Specifically, it is unclear whether mine water accumulations in the pit (overland flow, perched water seepage and incident precipitation) can be retained entirely on the pit floor. A statement of current practice from the active mining operation would be instructive in assessing the adequacy of this assumption. Regarding the reservoir recharge component, does this refer to Smart Reservoir, the existing clay pit or a proposed new reservoir? The report concludes that net losses at both sites will be incurred by the groundwater system, but are expected to be relatively small. In most respects, it is difficult to evaluate the validity of this conclusion because details of the analysis, including a description of the proposed mine plan and operation, and hydrologic balance assumptions and calculations, are not given in the report. AquaSan also needs to give specific references when citing existing RFP and published reports. The results cannot be accepted without further substantiation and verification.

From existing information at RFP, we know that there is a strong likelihood for hydrologic communication between Smart Reservoir and the Antelope springs complex (including seepage at the apple orchard). This relationship is supported by an easterly groundwater flow direction indicated by potentiometric data on RFP property; an alignment of wells with unusually high hydraulic conductivity values between the spring and RFP western boundary; and stable hydrogen and oxygen isotope data from monitoring wells and Antelope spring which indicate the presence of evaporated water in the groundwater. Analyses of well hydrographs, such as

the "recharge wave" hypothesis presented in the report, may also support this view, however in the case of well B401989, evapotranspiration at the spring probably has a significant influence on the shape of the hydrograph. The impact of a negative net change in groundwater flow is of particular concern for wetland issues in this area. Comparatively little is known about the groundwater system in the area of the Bluestone Amendment.

Based on seepage occurrences in the upper reaches of the Rock Creek drainage and depth to water table observations from the nearest wells, there is a possibility that the seeps are supported by perched groundwater water. Perched groundwater has been observed in the western area of the plant and in the active Western Aggregates mine pits located further to the north. If this assumption is true, then mining will likely permanently disrupt these wetland areas.

It is perhaps important to point out that additional hydrologic investigations of seepage areas in the vicinity of both proposed mining areas are planned and under contract for Fiscal Year 1995 by EG&G Environmental Operations Management. These investigations will provide more information on individual seeps and surface/groundwater interactions in the Woman and Rock Creek drainages.

EG&G ROCKY FLATS

INTEROFFICE CORRESPONDENCE

DATE: October 26, 1994 5400.1

TO: F. W. Chromec, Environmental Restoration Management, Bldg 80, X8576

FROM: P. A. Lee, Ecology and Watershed Management, Bldg T893A, X4244

SUBJECT: RESULTS OF ECOLOGY AND WATERSHED MANAGEMENT REVIEW OF THE HYDROLOGY ANALYSIS OF WESTERN AGGREGATE PROPOSAL - PAL-048-94

Listed below are the Ecology and Watershed Management (EWM) Branch review comments on the Aquasan, Inc. report entitled "Preliminary Assessment of the Hydrologic Effects of the Section 16 and Bluestone Amendment Sand and Gravel Mine Expansions" as agreed to in the Monday, October 24, 1994 meeting concerning the same issue.

1. There is a general lack of references, documentation of assumptions, and maps throughout the report.

2. Although the stated scope of this document includes reviewing hydrologic information on the groundwater systems in Rock and Woman Creeks, supporting information is only provided for Woman Creek. Site specific information will be needed to assess impacts from mining activities, particularly on the Rock Creek wetland areas.

3. The report implies that Antelope Springs and the Apple Orchard springs exist because of leakage from Rocky Flats Lake. This is unlikely to be true, because the springs apparently pre-date the lake. The lake was built in the late 1800s or early 1900s (1890-1910), while the stage stop at the apple orchard was established circa 1880, having been intentionally located near the springs.

4. One assumption stated in the report is that "mining activities will not penetrate the water table of the Rocky Flats alluvium (page 7)." This assumption is not in agreement with data from known groundwater well static water levels (to within 20 feet of the surface) and the mining permit statement that mining activities may extend to 60-80 feet below the surface.

5. The primary question of interest in this issue to ecologists is "How will upgradient activities affect downgradient habitats?" This report barely begins to address this issue. It is not clear what the upgradient impacts will be, and the surface and groundwater connections to downgradient systems remain undefined.

6. There is no mention of mitigation/remediation strategies for any of the proposed activities. Pertinent questions should address whether post-mining topography will allow for adequate groundwater recharge to sustain existing downgradient habitats , and communities of the mined pediments.

7. It is suggested that the report be distributed for review to the US Fish and Wildlife Service and the Colorado Division of Wildlife, since these Natural resource Trustees are very interested in the fate of this area.

EWM is on record as providing major ecological concerns in a letter to J. D. Wienand, DOE from T. G. Hedahl dated July 20,1994 (94-RF-07581). Downgradient habitats in both drainages include unique, biologically diverse riparian and seep areas that provide food, cover, and breeding grounds for a variety of important, protected flora and fauna. Of special concern are the Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*) and the Ute's Ladies Tresses (*Spiranthes diluvialis*). The former is currently under consideration for listing as a Threatened or Endangered species under the Endangered Species Act., with the largest known breeding habitat of this animal occurring in the upper Rock Creek drainage. The Utes Ladies Tresses is a Threatened species, and although its presence has not been confirmed at Rocky Flats, suitable habitat exists. An important component of this habitat is the presence of subsurface irrigation, which may be impacted by mining activities.

Attached is a map of the proposed administrative areas for the Preble's Meadow Jumping Mouse for the benefit of Environmental Restoration.

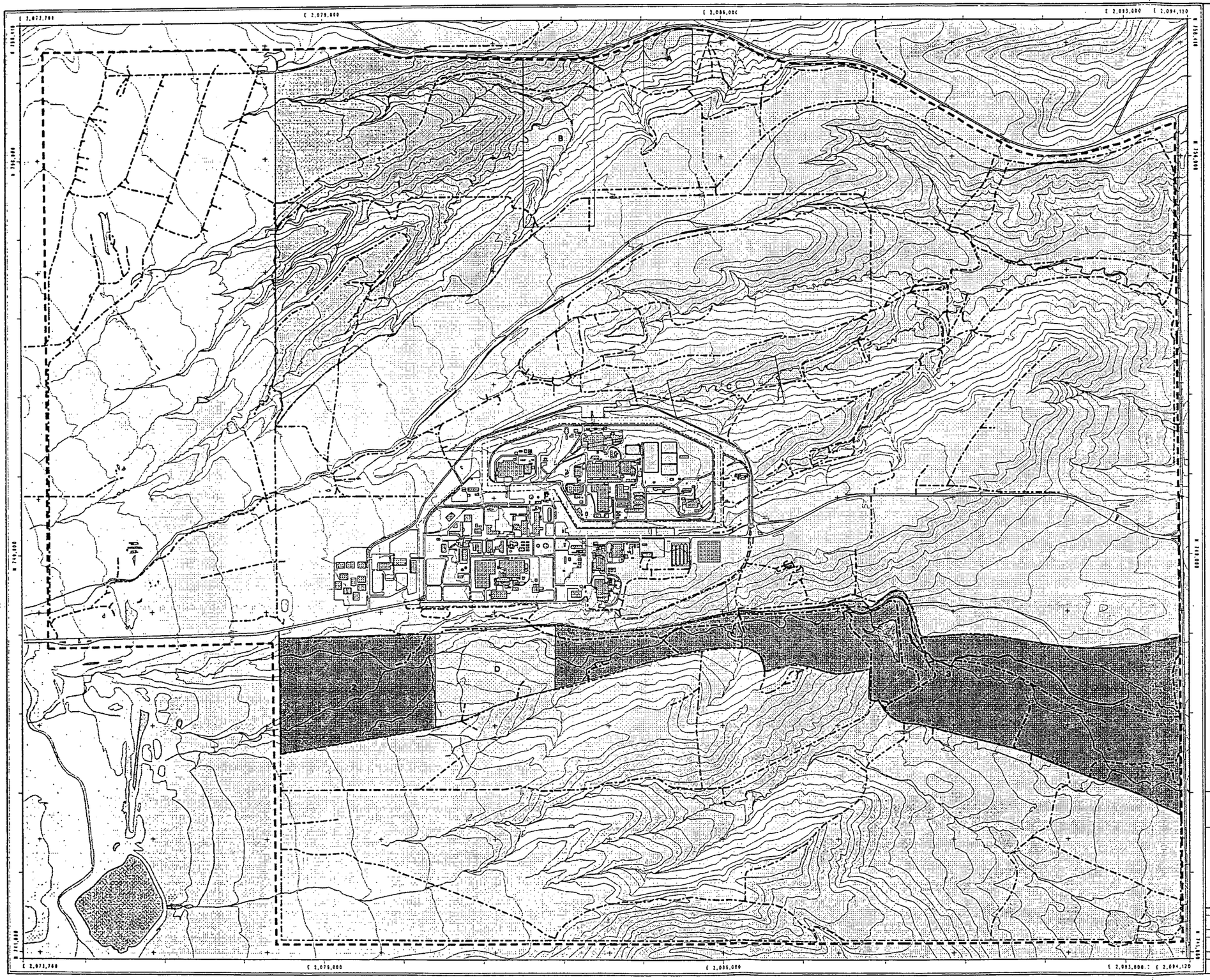
Please contact me at X4244 with any questions or requests for further information.

PAL:mad

Attachment:
As Stated

cc:
M. E. Bakeman w/o attachment
A. Deans w/o attachment
F. A. Harrington w/o attachment
T. G. Hedahl w/o attachment
J. D. Krause w/o attachment
S. A. Marshal w/o attachment
M. B. Murdock w/o attachment
D.C. Schrader w/o attachment
G. H. Setlock w/o attachment
R. J. Stevens w/o attachment
F. A. Vertucci w/o attachment
File

Figure 2
Proposed Administrative Areas for Investigation Management of Preble's Meadow Jumping Mouse



- Intensive study sites
- Proposed strict nature preserve
- Experimental treatment areas
- Buildings or other structures
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences
- Contours (20' intervals)
- Rocky Flats boundary
- Paved roads
- Dirt roads

DATA SOURCE:
Buildings, roads, and fences provided by Facilities Engr., EG&G Rocky Flats, Inc. - 1991.
Hydrology provided by USGS - (date unknown)
Intensive study sites, proposed strict nature preserve, and experimental treatment areas, provided by Allson Deans of EP/EWM - 1994.

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Scale = 1 : 20240
1 inch represents approximately 1686.66 feet
800 0 1600 2000ft

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:
EG&G ROCKY FLATS
Rocky Flats Environmental Technology Site
P.O. Box 464
Golden, Colorado 80402-0464

PROJECT NO.		BY / DEPARTMENT	DATE
None Assigned	GIS Analyst	Wendell Cheek/ER/GIS	09/13/94
MAP ID	Checked		
sim-0001	Approved	Allson Deans EP/EWM	
DATE CREATED			
September 13, 1994			

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